

**TRANSMITTAL OF INFORMATION DISCLOSURE STATEMENT**  
(Under 37 CFR 1.97(b) or 1.97(c))

Docket No.  
12423-3

In Re Application Of: **FLETCHER, Hansel M.**

Serial No.  
10/608,873

Filing Date  
June 27, 2003

Examiner  
To be assigned

Group Art Unit  
1645

Title: **Non-Virulent Porphyromonas Gingivalis Mutant**

Address to:  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**37 CFR 1.97(b)**

1. ☒ The Information Disclosure Statement submitted herewith is being filed within three months of the filing of a national application other than a continued prosecution application under 37 CFR 1.53(d); within three months of the date of entry of the national stage as set forth in 37 CFR 1.491 in an international application; before the mailing of a first Office Action on the merits, or before the mailing of a first Office Action after the filing of a request for continued examination under 37 CFR 1.114.

**37 CFR 1.97(c)**

2. ☐ The Information Disclosure Statement submitted herewith is being filed after the period specified in 37 CFR 1.97(b), provided that the Information Disclosure Statement is filed before the mailing date of a Final Action under 37 CFR 1.113, a Notice of Allowance under 37 CFR 1.311, or an Action that otherwise closes prosecution in the application, and is accompanied by one of:
- ☐ the statement specified in 37 CFR 1.97(e);
- OR**
- ☐ the fee set forth in 37 CFR 1.17(p).

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Non-Virulent Porphyromonas Gingivalis Mutant

**Payment of Fee**

(Only complete if Applicant elects to pay the fee set forth in 37 CFR 1.17(p))

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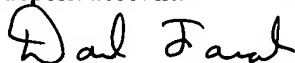
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Signature

Dated: January 30, 2004

David A. Farah

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PATENT  
10/608,873



12423-3

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	Group Art Unit: 1645.
	)	
FLETCHER, Hansel M.	)	Examiner: To be assigned
	)	
Serial No.: 10/608,873	)	
	)	
Filed: June 27, 2003	)	
	)	
For: Non-Virulent <i>Porphyromonas</i>	)	
<i>Gingivalis</i> Mutant	)	Pasadena, California

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents  
P.O. Box 1450  
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CERTIFICATE OF MAILING (37 CFR 1.8)

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Jennifer Hargis

January 30, 2004

Dear Sir:

Attached hereto is one PTO-1449 form listing documents believed relevant to the subject application. It is respectfully requested that these documents be considered by the Examiner and an initialed copy of each form be returned to the undersigned. It should be noted the word "prior" has been deleted from the form.

PATENT  
10/608,873

12423-3

It is believed that this disclosure complies with the requirements of 37 C.F.R.1.56 and the Manual of Patent Examining Procedures Section 707.05 (b). If for some reason the Examiner considers otherwise, it is respectfully requested that the undersigned be called so that any deficiencies can be remedied.

A copy of each document is enclosed. Some of the documents may have markings thereon. No significance is meant to be attached to the markings. These documents are not necessarily analogous art.

Respectfully submitted,

SHELDON & MAK  
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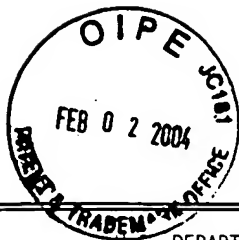
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Reg. No.38,134

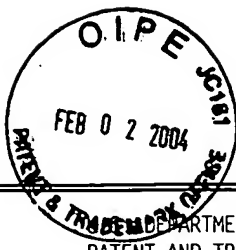
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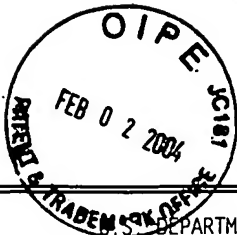
FORM PTO-1449		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTORNEY DOCKET NO. 12423-3	SERIAL NO.: 10/608,873
<b>LIST OF ART CITED BY APPLICANT</b> (Use several sheets if necessary)			APPLICANT: Fletcher, Hansel M.	
			FILING DATE: June 27, 2003	
<b>OTHER ART (Including Author, Title, Date, Pertinent Pages, etc.)</b>				
	A	Abaibou, H. et al., "A gene in the <i>recA</i> locus affects the virulence potential of <i>Porphyromonas gingivalis</i> W83," Abstract, <i>Periodontal Research</i> , p. 232		
	B	Abaibou, H. et al., " <i>vimA</i> Gene Downstream of <i>recA</i> Is Involved in Virulence Modulation in <i>Porphyromonas gingivalis</i> W83," <i>Infect. Immun.</i> 69:325-335, Jan. 2001		
	C	Aduse-Opoku, Joseph et al., "Characterization, Genetic Analysis, and Expression of a Protease Antigen (PrpRI) of <i>Porphyromonas gingivalis</i> W50," <i>Infection and Immunity</i> 63(12):4744-4754 (1995)		
	D	Anderson, D.M. et al., "Functional Properties of Nonhuman Primate Antibody to <i>Porphyromonas gingivalis</i> ," <i>Infection and Immunity</i> 63(9):3245-3252 (1995)		
	E	Barkocy-Gallagher, Genevieve A. et al., "Analysis of the <i>prtP</i> Gene Encoding Porphyain, a Cysteine Proteinase of <i>Porphyromonas gingivalis</i> ," <i>Journal of Bacteriology</i> 178(10):2734-2741 (1996)		
	F	Beck, James et al., "Periodontal Disease and Cardiovascular Disease," <i>J Periodontol</i> 67(10):1123-1137 (1996)		
	G	Booth, V. et al., "Passive Immunization with Monoclonal Antibodies against <i>Porphyromonas gingivalis</i> in Patients with Periodontitis," <i>Infection and Immunity</i> 64(2):422-427 (1996)		
	H	Chen, Priscilla B. et al., "Effect of Immunization on Experimental <i>Bacteroides gingivalis</i> ," <i>Infection and Immunity</i> , 55(10):2534-2537 (Oct. 1987)		
	I	Chen, T. et al., " <i>Porphyromonas gingivalis</i> Gingipains and Adhesion to Epithelial Cells," <i>Infect. Immun.</i> 69:3048-3056, May 2001.		
	J	Christersson, L.A. et al., "Specific Subgingival Bacteria and Diagnosis of Gingivitis and Periodontitis," <i>J Dent Res</i> 68:1633-1639 (1989)		
	K	Devereux, John et al., "A comprehensive set of sequence analysis programs for the VAX," <i>Nucleic Acids Research</i> 12(1):387-395 (1984)		
	L	Dickinson, Douglas P. et al., "Molecular Cloning and Sequencing of the Gene Encoding the Fimbrial Subunit Protein of <i>Bacteroides gingivalis</i> ," <i>Journal of Bacteriology</i> 170(4):1658-1665 (1988)		
	M	Dusek, David M. et al., "Systemic and Mucosal Immune Responses in Mice Orally Immunized with Avirulent <i>Salmonella typhimurium</i> Expressing a Cloned <i>Porphyromonas gingivalis</i> Hemagglutinin," <i>Infection and Immunity</i> 62(5):1652-1657 (1994)		
	N	Dybvig, Kevin et al., "Degenerate Oligonucleotide Primers for Enzymatic Amplification of <i>recA</i> Sequences from Gram-Positive Bacteria and Mycoplasmas," <i>Journal of Bacteriology</i> 174(8):2729-2732 (1992)		
	O	Ebersole, J. L. et al., "Murine Model for Virulence Characteristics of Periodonto-pathogens," Abstract 837, <i>J. Dent. Res.</i> 68:286, 1989		
	P	Fletcher, Hansel M. et al., "Virulence of a <i>Porphyromonas gingivalis</i> W83 Mutant Defective in the <i>prtH</i> Gene," <i>Infection and Immunity</i> 63(4):1521-1528 (1995)		
EXAMINER			DATE CONSIDERED	
EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.				



FORM PTO-1449		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTORNEY DOCKET NO. 12423-3	SERIAL NO.: 10/608.873
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				FILING DATE: June 27, 2003	
<b>OTHER ART (Including Author, Title, Date, Pertinent Pages, etc.)</b>					
	Q	Fletcher, Hansel M. et al., "Nucleotide Sequence of the <i>Porphyromonas gingivalis</i> W83 <i>recA</i> Homolog and Construction of a <i>recA</i> -Deficient Mutant," <u>Infection and Immunity</u> 65(1):4592-4597 (1997)			
	R	Fletcher, H.M., "Virulence of <i>recA</i> -defective mutants of <i>Porphyromonas gingivalis</i> W83, <u>Abstracts of the 97th General Meeting of the American Society for Microbiology</u> , abstract B-424, p. 101, Miami Beach, Florida, May 4-8, 1997			
	S	Genco, C.A. et al., "Characterization of a Tn4351-Generated Hemin Uptake Mutant of <i>Porphyromonas gingivalis</i> : Evidence for the Coordinate Regulation of Virulence Factors by Hemin," 63(7):2459-2466 (1995)			
	T	Genco, C.A. et al., "A Peptide Domain on Gingipain R Which Confers Immunity against <i>Porphyromonas gingivalis</i> Infection in Mice," <u>Infection and Immunity</u> , 66(9):4108-4114 (Sept. 1998)			
	U	Goodman, Heide J.K. et al., "Molecular analysis of the <i>Bacteroides fragilis recA</i> gene," <u>Gene</u> 94:77-82 (1990)			
	V	Hamada, Nobushiro et al., "Construction and Characterization of a <i>fimA</i> Mutant of <i>Porphyromonas gingivalis</i> ," <u>Infection and Immunity</u> 62(5):1696-1704 (1994)			
	W	Hoover, Charles I. et al., "Transposon-induced pigment-deficient mutants of <i>Porphyromonas gingivalis</i> ," <u>FEMS Microbiology Letters</u> 124:43-48 (1994)			
	X	Houston, Laura et al., "Response of Guinea Pigs to a Vaccine Containing a New Adjuvant (SAF) and Gram-Negative Bacteria," <u>Laboratory Animal Science</u> , 45(1):59-66 (1995)			
	Y	Kadowaki, T. et al., "Arg-gingipain Acts as a Major Processing Enzyme for Various Cell Surface Proteins in <i>Porphyromonas gingivalis</i> ," <u>J. Biol. Chem.</u> 273:29072-29076, Oct. 1998			
	Z	Kawashima, Hitoshi et al., "Functional Domains of <i>Escherichia coli recA</i> Protein Deduced from the Mutational Sites in the Gene," <u>Mol Gen Genet</u> 193:288-292 (1984)			
	AA	Kesavalu, L. et al., " <i>Porphyromonas gingivalis</i> Virulence in Mice: Induction of Immunity to Bacterial Components," <u>Infection and Immunity</u> 60(4):1455-1464 (1992)			
	AB	Kelly, C.G. et al., "The Relationship Between Colonization and Haemagglutination Inhibiting and B Cell Epitopes of <i>Porphyromonas gingivalis</i> ," <u>Clin. Exp. Immunol.</u> 110:285-291, No. 1997			
	AC	Kesavalu, L. et al., "Trypsin-like protease activity of <i>Porphyromonas gingivalis</i> as a potential virulence factor in a murine lesion model," <u>Microbial Pathogenesis</u> 20:1-10 (1996)			
	AD	Klausen, B. et al., "Periodontal Bone Level and Gingival Proteinase Activity in Gnotobiotic Rats Immunized With <i>Bacteroides gingivalis</i> ," <u>Oral Microbiol. Immunol.</u> 6:193-201, 1991			
	AE	Kolenbrander, Paul E. et al., "Adhere Today, Here Tomorrow: Oral Bacterial Adherence," <u>Journal of Bacteriology</u> 175(11):3247-3252 (1993)			
	AF	Kuboniwa, M. et al., "Hemoglobin-Binding Protein Purified from <i>Porphyromonas gingivalis</i> Is Identical to Lysine-Specific Cysteine Proteinase (Lys-Gingipain)," <u>Biochem. Biophys. Res. Commun.</u> 249:38-43, 1998			
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FORM PTO-1449		DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTORNEY DOCKET NO. 12423-2	SERIAL NO.: 107608.873
<b>LIST OF ART CITED BY APPLICANT</b> (Use several sheets if necessary)				APPLICANT: Fletcher, Hansel M.	
				FILING DATE: June 27, 2003	
<b>OTHER ART (Including Author, Title, Date, Pertinent Pages, etc.)</b>					
	AG	Kuramitsu, H. et al., "Multiple colonization defects in a cysteine protease mutant of <i>Porphyromonas gingivalis</i> ," <u>Journal of Periodontal Research</u> 32:140-142 (1997)			
	AH	Lee, Jin-Yong et al., " <i>Porphyromonas (Bacteroides) gingivalis</i> Fimbrillin: Size, Amino-Terminal Sequence, and Antigenic Heterogeneity," <u>Infection and Immunity</u> 59(1):383-389 (1991)			
	AI	McKee, Ailsa S. et al., "Isolation of colonial variants of <i>Bacteroides gingivalis</i> W50 with a reduced virulence," <u>J. Med. Microbiol.</u> 27:59-64 (1988)			
	AJ	Malek, R. et al., "Inactivation of the <i>Porphyromonas gingivalis</i> <i>fimA</i> Gene Blocks Periodontal Damage in Gnotobiotic Rats," <u>Journal of Bacteriology</u> 176(4):1052-1059 (1994)			
	AK	Mayrand, D. et al., "Biology of Asaccharolytic Black-Pigmented <i>Bacteroides</i> Species," <u>Microbiological Reviews</u> 52(1):134-152 (1988)			
	AL	Moritz, Alan J. et al., "Immunization With <i>Porphyromonas gingivalis</i> Cysteine Protease: Effects on Experimental Gingivitis and Ligature-Induced Periodontitis in <i>Macaca fascicularis</i> ," <u>J Periodontol</u> 69(6):686-697 (1998)			
	AM	Nakayama, Koji et al., "Construction and Characterization of Arginine-specific Cysteine Proteinase (Arg-gingipain)-deficient Mutants of <i>Porphyromonas gingivalis</i> ," <u>The Journal of Biological Chemistry</u> 270(4):23619-23626 (1995)			
	AN	Nakayama, Koji et al., "Haemoglobin receptor protein is intragenetically encoded by the cysteine proteinase-encoding genes and the haemagglutinin-encoding gene of <i>Porphyromonas gingivalis</i> ," <u>Molecular Microbiology</u> 27(1):51-61 (1998)			
	AO	Nakayama, K. et al., "Involvement of Arginine-Specific Cysteine Proteinase (Arg-Gingipain) in Fimbriation of <i>Porphyromonas gingivalis</i> ," <u>J. Bacteriol.</u> 178:2818-2824, May 1996			
	AP	O'Brien-Simpson N. M. et al., "Role of RgpA, RgpB, and Kgp Proteinase in Virulence of <i>Porphyromonas gingivalis</i> W50 in a Murine Lesion Model," <u>Infection and Immunity</u> 69:7527-7534, Dec. 2001			
	AQ	Okamoto, K. et al., "Involvement of a Lysine-specific Cysteine Proteinase in Hemoglobin Adsorption and Heme Accumulation by <i>Porphyromonas gingivalis</i> ," <u>J. Biol. Chem.</u> 273:21225-21231, 1998.			
	AR	Okamoto, Kuniaki et al., "Cloning and Sequencing of the Gene Encoding a Novel Lysine-Specific Cysteine Proteinase (Lys-Gingipain) in <i>Porphyromonas gingivalis</i> : Structural Relationship with the Arginine-Specific Cysteine Proteinase (Arg-Gingipain)," <u>J. Biochem</u> 120:398-406 (1996)			
	AS	Park, Yoonsuk et al., "Characterization of the <i>tpa</i> Gene Product and Isolation of a Specific Protease-Deficient Mutant of <i>Porphyromonas gingivalis</i> W83," <u>Infection and Immunity</u> 61(10):4139-4146 (1993)			
	AT	Pearce, B.J. et al., "The <i>rec</i> Locus, a Competence-Induced Operon in <i>Streptococcus pneumoniae</i> ," <u>Journal of Bacteriology</u> 177(1):86-93 (1995)			
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FORM PTO-1449

DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICE

ATTORNEY DOCKET NO. 12423-2

SERIAL NO.: 10/608,873

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(Use several sheets if necessary)

APPLICANT: Fletcher, Hansel M.

FILING DATE: June 27, 2003

GROUP: 1645

**OTHER ART (Including Author, Title, Date, Pertinent Pages, etc.)**

AU	Pavloff, Nadine et al., "Molecular Cloning and Characterization of <i>Porphyromonas gingivalis</i> Lysin-specific Gingipain," <u>The Journal of Biological Chemistry</u> 272(3):1595-1600 (1997)
AV	Pavloff, Nadine et al., "Molecular Cloning and Structural Characterization of the Arg-gingipain Proteinase of <i>Porphyromonas gingivalis</i> ," <u>The Journal of Biological Chemistry</u> 270(3):1007-1010 (1995)
AW	Rajapakse P. S. et al., "Immunization with the RgpA-Kgp Proteinase-Adhesin Complexes of <i>Porphyromonas gingivalis</i> Protects Against Periodontal Bone Loss in the Rat Periodontitis Model," <u>Infect. Immun.</u> 70:2480-2486, May 2002
AX	Rangarajan, Minnie et al., "The <i>prpR1</i> and <i>prpR2</i> arginine-specific protease genes of <i>Porphyromonas gingivalis</i> W50 produce five biochemically distinct enzymes," <u>Molecular Microbiology</u> 23(5):955-965 (1997)
AY	Sambrook, J. et al., "Electrophoresis of RNA through Gels Containing Formaldehyde," <u>Molecular Cloning: A Laboratory Manual</u> 2:7.43-7.53 (1989)
AZ	Schenkein, Harvey A. et al., "Increased Opsonization of a <i>prtH</i> -Defective Mutant of <i>Porphyromonas gingivalis</i> W83 Is Caused by Reduced Degradation of Complement-Derived Opsonins," <u>The Journal of Immunology</u> 5331-5337
BA	Schenkein, Harvey A., "The effect of periodontal proteolytic <i>Bacteroides</i> species on proteins of the human complement system," <u>Journal of Periodontal Research</u> 23:187-192 (1988)
BB	Shah, H.N. et al., "Studies on the virulence properties and metabolism of pleiotropic mutants of <i>Porphyromonas gingivalis</i> ( <i>Bacteroides gingivalis</i> ) W50," <u>Oral Microbiol Immunol</u> 4:19-23 (1989)
BC	Shah, H.N. et al., "Proposal for Reclassification of <i>Bacteroides asaccharolyticus</i> , <i>Bacteroides gingivalis</i> , and <i>Bacteroides endodontalis</i> in a New Genus, <i>Porphyromonas</i> ," <u>International Journal of Systematic Bacteriology</u> 38(1):128-131 (1988)
BD	Stroeher, Uwe H. et al., "Gene sequence of <i>recA</i> <sup>+</sup> and construction of <i>recA</i> mutants of <i>Vibrio cholerae</i> ," <u>Mol Gen Genet</u> 244:295-302 (1994)
BE	Thompson, Stuart A. et al., "Isolation of the <i>Helicobacter pylori recA</i> Gene and Involvement of the <i>recA</i> region in Resistance to Low pH," <u>Infection and Immunity</u> 63(6):2185-2193 (1995)
BF	Tokuda, M. et al., "Role of <i>Porphyromonas gingivalis</i> Protease Activity in Colonization of Oral Surfaces," <u>Infect. Immun.</u> 64:4067-4073, Oct. 1996
BG	Tokuda, Masayuki et al., "Role of Arg-Gingipain A in Virulence of <i>Porphyromonas gingivalis</i> ," <u>Infection and Immunity</u> 66(3):1159-1166 (1998)

EXAMINER

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